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Research Aid

People's Republic of China: Foreign Trade in Machinery and Equipment Since 1952

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RESEARCH AID

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People's Republic of China: Foreign Trade in Machinery and Transportation Equipment Since 1952

General Trends

1. Imports of machinery and transportation equipment[1] have played a vital role in expanding and modernizing China's industrial base. The pattern of machinery imports (see Figure 1) has followed the overall trends in the Chinese economy. Imports of machinery and equipment grew rapidly during the 1950s with the implementation of the First Five-Year Plan (1953-57) and the launching of the Great Leap Forward (1958-60). Total imports of machinery and equipment reached a peak of $933 million in 1959 (see Table 1) and then plummeted during the early 1960s to a low of $100 million in 1963.

Table 1

China: Trade in Machinery and Transportation Equipment[1]

Million US $

Year	Imports[2]			Exports[2]		
	Total	Communist	Non-Communist	Total	Communist	Non-Communist
1952	193	181	12	2	2	Negl.
1953	276	255	21	2	2	Negl.
1954	381	368	13	47	47	Negl.
1955	411	396	15	58	57	1
1956	545	503	42	52	50	2
1957	566	500	66	33	30	3
1958	715	645	70	40	33	7
1959	933	873	60	59	50	9
1960	840	790	50	39	33	6
1961	272	246	26	71	67	4
1962	102	86	16	70	65	5
1963	100	76	24	70	59	11
1964	162	101	61	62	52	10
1965	302	147	155	62	45	17
1966	433	205	238	71	49	22
1967	335	133	202	92	72	20
1968	235	129	106	97	74	23
1969	214	115	99	88	63	25
1970	398	149	249	91	48	43
1971	481	222	259	119	55	64
1972	521	278	246	124	63	61
1973	797	296	501	172	97	75[3]

[1] Data are in current US dollars.
[2] Data are f.o.b. country of origin.
[3] Estimate.

[1] The terms **machinery and transportation equipment, machinery and equipment,** and **machinery** are used interchangeably throughout this handbook to refer to those commodities included in Section 7 (Machinery and Transport Equipment) of the Standard International Trade Classification (SITC). Section 7 of the SITC differs slightly from the Soviet classification Machinery, Equipment, and Transportation Facilities; hence the data on non-Communist trade are not precisely comparable with the data on trade with the USSR and other Communist countries. For sources and methods for estimating China's trade in machinery and transportation equipment with Communist countries and non-Communist countries, see Appendixes A and B, respectively.

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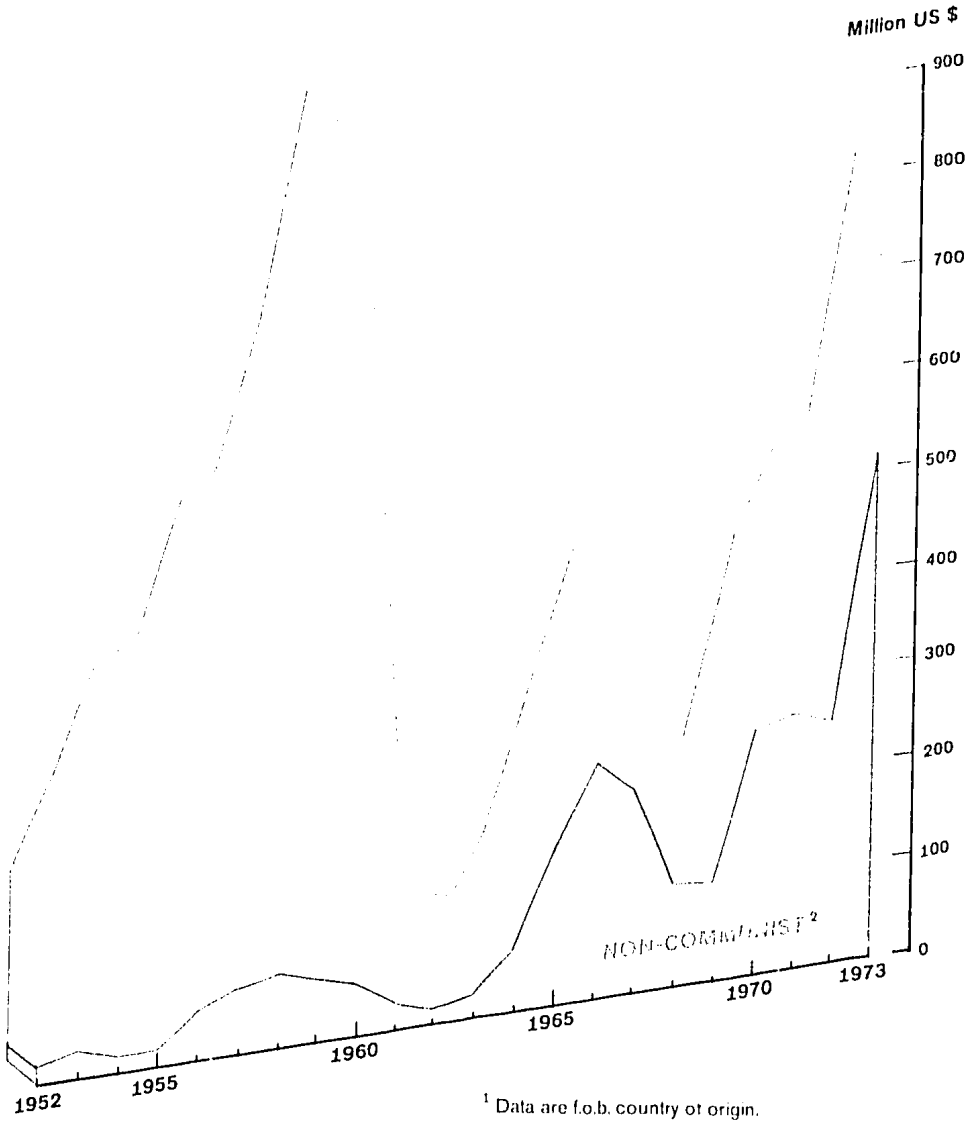
Figure 1

CHINA: Imports[1] of Machinery and Transportation Equipment



[1] Data are f.o.b. country of origin.

[2] Throughout this handbook, the term non-Communist countries includes Yugoslavia.

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With economic recovery, imports of machinery and equipment rose sharply until 1967. The recovery was cut short by the disruptions of the Cultural Revolution, and machinery imports again fell in 1967–69. Chinese economic growth in the 1970s has been accompanied by a new surge in machinery imports. Total imports in 1973 were $797 million—still below the peak level of 1959.

2. Exports of machinery and equipment (see Figure 2) have been less influenced by the trends in the domestic economy. They have constituted only 2% to 5% of China's total exports. Much of China's machinery has been exported under aid agreements. Except for the first half of the 1960s, China's machinery exports have grown steadily

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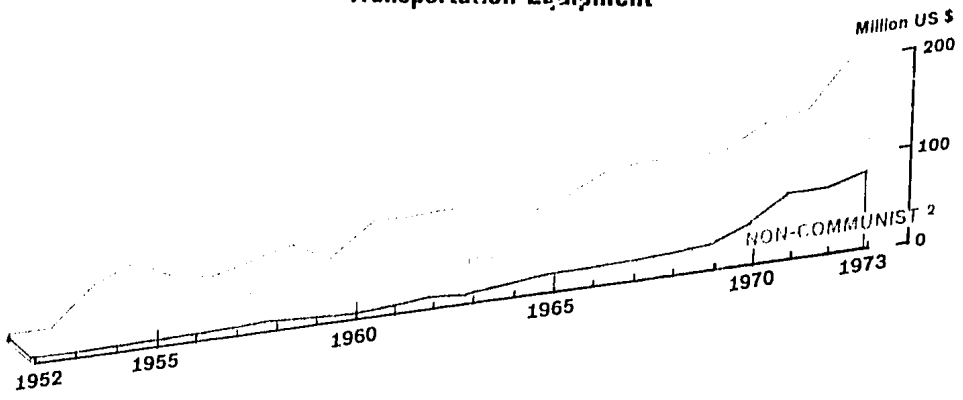
Figure 2

CHINA: Exports[1] of Machinery and Transportation Equipment



[1] Data are f.o.b. China.

[2] Throughout this handbook, the term non-Communist countries includes Yugoslavia.

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as a result of increased PRC aid and expansion of trade relations with the less developed non-Communist countries

Trade with Communist Countries

3. During the 1950s, more than three-fourths of China's trade was conducted with other Communist countries, with imports of machinery and equipment rising steadily from $181 million in 1952 to $873 million in 1959. During 1952–59 the USSR and Eastern Europe accounted for 93% of China's total machinery imports. The machinery component of China's imports from the Communist countries jumped quickly from about one-fifth of the total in 1952 to more than three-fifths by the end of the period (see Table 2).

4. The withdrawal of Soviet technicians in mid-1960 was a serious shock to the Chinese economy, already overstrained by the Great Leap Forward. Imports of machinery from the Communist countries dropped sharply after 1960 and hit a low of $76 million in 1963. Machinery purchases rebounded with the economic recovery in the mid-1960s. After a decline during the Cultural Revolution machinery imports from the Communist countries have been growing since 1969, but they are still well below the peak levels of the late 1950s.

5. Despite the shift in PRC trade away from the Communist countries, the USSR and Eastern Europe continue to be important sources of machinery and equipment. For 1961–73 one-half of China's machinery imports were from the Communist world. From 1952 to 1960 the USSR was the principal supplier, accounting for 60% of Communist machinery exports to the PRC. For most years since 1960, Eastern Europe has surpassed the USSR as a source of machinery and equipment, supplying more than 70% of these imports from the Communist world in 1965–73. East Germany has been China's leading source of machinery in Eastern Europe, with machinery constituting perhaps 90% of China's total imports from that country. Closer ties with Romania since 1970 have boosted China's machinery imports from that country.

6. The composition of China's machinery imports from the Communist countries has shifted somewhat over the years. For the USSR (see Table A-3) the most significant change has been in complete plant imports. Equipment for whole plants dominated Chinese machinery imports from the USSR from 1952 to 1960, then fell sharply, and

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Table 2

China: Share of Machinery and Transportation Equipment in Trade with the Communist Countries

Percent

Year	Imports			Exports		
	Total Communist	USSR	Eastern Europe	Total Communist	USSR	Other [1] Communist
1952	22	28	15	Negl.	Negl.	0
1953	29	24	50	Negl.	Negl.	0
1954	20	26	70	6	2	11
1955	30	31	70	6	2	15
1956	56	42	75	5	1	11
1957	57	50	80	3	1	27
1958	59	50	80	2	Negl.	26
1959	64	63	85	3	1	23
1960	61	62	85	2	Negl.	18
1961	34	29	85	7	Negl.	25
1962	18	12	90	6	2	19
1963	18	22	70	7	2	16
1964	26	43	70	7	2	14
1965	28	40	65	7	Negl.	14
1966	40	19	85	8	Negl.	16
1967	39	50	80	15	Negl.	22
1968	38	25	80	15	Negl.	23
1969	39	79	75	13	Negl.	20
1970	39	64	70	10	Negl.	16
1971	44	70	70	9	Negl.	17
1972	52	76	70	8	Negl.	17
1973	42	74	65	10	Negl.	17

[1] Including Eastern Europe for 1963 and 1964.

has disappeared in recent years. Imports of oil drilling equipment from the USSR have also been phased out since 1960. Soviet transport equipment has remained important. China continues to purchase Soviet trucks and has imported many Soviet aircraft since 1970.

7. Commodity detail on China's machinery imports from Eastern Europe is much less complete. Available information for various years (see Table A-4, A-5, and A-6) and from trade agreements show that China imports a wide range of machinery from Eastern Europe. Whole plants were an important category during the 1950s. Other major items imported from Eastern Europe include transport equipment, mainly trucks and ships; machine tools; electric generating equipment; and construction equipment.

8. Until recently the bulk of China's machinery exports have gone to the Communist countries (see Tables 1 and A-1). They have never accounted for more than 15% of China's total exports to Communist countries (see Table 2) and most have been provided under aid programs (see Table A-1). Chinese assistance to North Korea and North Vietnam began late in the 1950s. Aid to Albania began in the early 1960s, after that country allied itself with China in the Sino-Soviet dispute. China exported machinery to Cuba during 1962 to 1965, a period when Peking competed with Moscow as an aid donor. A good part of the Chinese exports of machinery and equipment has probably been equipment for complete plants. Other machinery exports have included trucks, other transportation equipment, textile machinery, simple machine tools, and agricultural machinery.

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Trade with Non-Communist Countries

9. The low levels of imports from 1952 to 1955 reflect the embargo on trade with the PRC and China's close economic ties with the Communist countries (see Table 1). Imports in the latter half of the 1950s picked up as Western restrictions on trade with China were relaxed. Until the early 1960s machinery imports from the West remained a small fraction of the total and consisted primarily of items that China could not obtain from the Communist countries.

10. With its economy on the upswing China turned to the West in 1964 as a source of modern machinery and technology. Purchases of whole plants boosted China's machinery imports from the West during this period. Following a decline due to the Cultural Revolution, imports of machinery from the West exceeded those from the Communist countries in every year but one after 1969.

11. Virtually all of China's imports of machinery and transportation equipment from the West have come from the developed countries. Japan has been the largest supplier since 1963 (see Table B-2). France and West Germany are the major suppliers among the West European countries, with the United Kingdom, Italy, Switzerland and Sweden also being important sources. Of the less developed countries, Morocco has sold many trucks to China in some years and Pakistan made a large one-time sale of used aircraft in 1970.

12. China imports a wide range of machinery and transportation equipment from the West (see Table B-1). The principal categories since 1963 have been metalworking machinery, pumps, bearings, and transport equipment. Imports of transport equipment shot up rapidly after 1969 as part of China's program to upgrade its transport sector.

13. China's exports of machinery and equipment to the non-Communist countries were fairly small until 1963. Since then machinery exports have been on an upward trend reflecting China's growing relations with the less developed countries (see Table 1). Most of China's machinery exports to non-Communist countries go to the Third World under aid programs. Major types of machinery exported by China (see Table B-3) have included machine tools, textile machinery, bicycles, and some whole plants. Deliveries for the Tanzam Railroad, China's largest single aid project, have increased exports of railroad equipment, trucks, and construction machinery since 1970.

Trade in Constant Prices

14. Calculating the value of China's imports of machinery and equipment in terms of 1957 US dollars (see Appendixes A and B) does not appreciably alter the overall monetary pattern of China's machinery trade. The largest changes occurred in imports from the non-Communist countries in the 1970s when inflation and devaluation of the US dollar had a strong effect on the dollar value of imports (see Table 3). The constant dollar series shows that the real value of machinery imports from the West actually declined in both 1971 and 1972 and that imports from the Communist countries in 1971-72 exceeded those from the non-Communist countries.

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Table 3

China: Trade in Machinery and Transportation Equipment in Constant 1957 US Dollars

Million US $

Year	Imports			Exports [1]		
	Total	Communist [2]	Non-Communist [3]	Total	Communist	Non-Communist
1952	195	181	14	2	2	Negl.
1953	280	255	25	2	2	Negl.
1954	383	368	15	47	47	Negl.
1955	413	396	17	58	57	1
1956	547	503	44	52	50	2
1957	566	500	66	33	30	3
1958	713	645	68	40	33	7
1959	931	873	58	59	50	9
1960	836	790	46	39	33	6
1961	270	246	24	71	67	4
1962	101	86	15	70	65	5
1963	98	76	22	70	59	11
1964	159	101	58	62	52	10
1965	293	147	146	62	45	17
1966	415	205	210	71	49	22
1967	306	133	173	92	72	20
1968	219	129	90	97	74	23
1969	199	115	84	88	63	25
1970	356	149	207	91	48	43
1971	418	222	196	119	55	64
1972	431	254	177	124	63	61
1973	574	233	341	172	97	75 [4]

[1] The series for Chinese exports are the same as the current US dollar series. For methodologies, see Appendixes A and B.

[2] The series for imports from the Communist countries is the same as the current value series except for 1972-73, see Appendix A.

[3] Imports from the non-Communist countries have been deflated into 1957 US dollars by the method described in Appendix B.

[4] Estimate.

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Appendix A

Sources and Methods for Estimating China's Trade in Machinery and Transportation Equipment with the Communist Countries

USSR

Data on Chinese imports and exports of machinery and equipment are from the official Soviet trade handbooks and are converted into US dollars at the official commercial rate for each year. Totals for imports and exports are the values given for the Soviet trade classification category Machinery, Equipment, and Transport Facilities. Commodity detail is presented according to the Soviet trade nomenclature system. Because the commodity detail in the Soviet handbooks is not sufficiently disaggregated, it is not possible to convert these data to the Standard International Trade Classification (SITC). The Soviet trade classification includes some items such as instruments and abrasives in the machinery and equipment category which are excluded in the SITC. Although the level of commodity detail does not permit subtracting these items from USSR imports, their values have probably been small and do not affect the comparability of Soviet and SITC data significantly.

Eastern Europe

Data on China's machinery and equipment trade with Eastern Europe is much less detailed than with the USSR. Detailed commodity information on machinery exports to China are available for three countries and only for some years—Czechoslovakia, 1967 73; Hungary, 1952 59; and Poland, 1953 and 1958 68. For the other East European countries and for other years, the official trade handbooks provide totals for Chinese imports and exports and limited information on selected items of machinery often given in volume but not value terms. As with the USSR, values from the East European handbooks are converted into US dollars at the official commercial exchange rate for each year. For 1952 53, the value of China's imports of machinery from Eastern Europe is based on the statement in an official Chinese source[2] that in 1953 machinery accounted for about 51% of Chinese imports from Eastern Europe and that this was nearly four times the level of 1952. For 1954 on, China's imports of machinery and equipment from Eastern Europe have been estimated as a percentage of total exports from Eastern Europe to China. For Czechoslovakia, Hungary, and Poland, the data noted above were used to estimate the share of machinery in exports to China by these countries. For the other three countries, information from trade agreements and other sources indicates that machinery also makes up a large percentage of their exports to China. For example, a 1958 Soviet article on Sino-East European trade estimated that 90% of East German exports to China in the 1950s were machinery and equipment.[3] The estimates of the share of machinery in China's total imports from Eastern Europe are shown in Table A-2.

Other Communist Countries

Data on China's exports of machinery and equipment to Albania, Cuba, and the Far Eastern Communist countries are lacking and even information on total Chinese exports and imports with these countries is incomplete. Estimates for China's ma-

[2] **Hsin-hua pan yueh-kan** (New China Semimonthly) No. 9, 1953, p. 167.

[3] From "Economic Cooperation of the People's Republic of China With the European People's Democracies," **Vneshnaya Torgovlya**, Vol. XXVIII, No. 10, Moscow, October 1958, pp. 2 9.

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chinery exports to the other Communist countries are only rough approximations. Estimates of China's machinery exports to the Far Eastern Communist countries and Cuba are based on the assumption that one-half of Chinese aid to these countries each year has consisted of deliveries of machinery and equipment. During the 1950s only the Far Eastern Communist countries were receiving Chinese aid. Chinese machinery exports in 1952 53 were probably negligible because economic reconstruction was just getting under way in China. For 1954 73, China's trade surplus with these countries is assumed to represent deliveries under aid agreements. In 1960, China extended a $60 million credit to Cuba for the construction of complete plants and other technical aid. This credit was drawn between 1961 and 1965. Since then Chinese exports of machinery to Cuba have probably been negligible. China's economic relations with Albania only became significant after 1960. China exports a wide range of goods to Albania including foodstuffs, metals, industrial raw materials, and machinery. Machinery and transportation equipment are estimated to constitute 20% of China's total exports to Albania since 1962.

Trade in Constant Prices

As a first approximation and until further research can be done, it has been assumed that prices of machinery and equipment in trade between China and other Communist countries have been constant. The only adjustment has been for the devaluation of the US dollar since 1971; this adjustment in China's imports from Communist countries is noted in the following tabulation:

Million US $

	Total	USSR	Eastern Europe
1972			
Current value	278	92	186
Constant value	254	84	170
1973			
Current value	296	101	195
Constant value	233	83	150

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Table A-1

China: Trade in Machinery and Transportation Equipment with the Communist Countries

Million US $

Year	Imports [1]			Exports [1]			
	USSR	Eastern Europe [2]	Total	USSR	Eastern Europe [2]	Other Communist [3]	Total
1952	157	24	181	2	....	....	2
1953	161	94	255	2	....	....	2
1954	199	169	368	10	....	37	47
1955	230	166	396	10	....	47	57
1956	305	198	503	9	....	41	50
1957	272	228	500	6	....	24	30
1958	318	327	645	4	....	29	33
1959	597	276	873	12	....	38	50
1960	504	286	790	1	....	32	33
1961	108	138	246	Negl.	....	67	67
1962	27	59	86	9	....	56	65
1963	42	34	76	7	4	48	59
1964	58	43	101	6	3	43	52
1965	77	70	147	....	....	45	45
1966	86	119	205	Negl.	....	49	49
1967	25	108	133	....	....	72	72
1968	15	114	129	....	....	74	74
1969	22	93	115	....	....	63	63
1970	16	133	149	....	....	48	48
1971	55	167	222	....	....	55	55
1972	92	186	278	....	....	63	63
1973	101	195	296	....	....	97	97

[1] Data are f.o.b. country of origin.

[2] Includes Bulgaria, Czechoslovakia, East Germany, Hungary, Poland, and Romania.

[3] Includes Albania, Cuba, North Vietnam, North Korea, and Mongolia.

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Table A-2

China: Imports of Machinery and Transportation Equipment from Eastern Europe, as a Share of Total Imports[1]

Value in Million US $

		Eastern Europe[2]	Bulgaria	Czecho-slovakia	East Germany	Hungary	Poland	Romania
1952	Total imports	155	1	55	55	21	24	Negl.
	Imports of machinery and transportation equipment	21	Negl.	8	8	6	2	Negl.
	Percent	15	Negl.	15	15	**29**	10	Negl.
1953	Total imports	189	5	61	60	30	31	2
	Imports of machinery and transportation equipment	94	1	30	42	18	6	1
	Percent	50	**20**	50	70	**60**	19	50
1954	Total imports	241	4	64	100	31	37	5
	Imports of machinery and transportation equipment	169	1	38	90	22	16	3
	Percent	70	**25**	60	90	**71**	**43**	50
1955	Total imports	237	5	58	97	36	35	6
	Imports of machinery and transportation equipment	166	Negl.	35	87	26	14	3
	Percent	70	**10**	60	90	**72**	**40**	50
1956	Total imports	264	5	65	95	31	50	18
	Imports of machinery and transportation equipment	198	1	52	86	19	27	15
	Percent	75	**20**	80	90	**61**	**54**	85
1957	Total imports	285	4	81	106	29	45	20
	Imports of machinery and transportation equipment	228	Negl.	73	95	20	27	19
	Percent	80	**10**	90	90	**69**	**60**	95
1958	Total imports	409	11	109	133	58	72	26
	Imports of machinery and transportation equipment	327	4	104	126	21	47	25
	Percent	80	**36**	95	95	**36**	**65**	95
1959	Total imports	325	6	100	107	40	43	29
	Imports of machinery and transportation equipment	276	3	95	102	14	26	27
	Percent	85	50	95	95	**35**	**60**	95
1960	Total imports	337	8	109	97	40	50	33
	Imports of machinery and transportation equipment	286	4	104	92	16	35	31
	Percent	85	50	95	95	40	**70**	95
1961	Total imports	162	8	34	55	29	27	9
	Imports of machinery and transportation equipment	138	4	32	52	17	25	8
	Percent	85	50	95	95	60	**93**	90
1962	Total imports	66	3	12	22	12	15	2
	Imports of machinery and transportation equipment	59	2	11	20	6	15	1
	Percent	90	50	90	90	50	**100**	50
1963	Total imports	48	1	9	10	3	11	14
	Imports of machinery and transportation equipment	31	Negl.	8	9	2	8	7
	Percent	70	Negl.	90	90	50	**73**	50

Footnotes at end of table.

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Table A-2 (Continued)

China: Imports of Machinery and Transportation Equipment from Eastern Europe, as a Share of Total Imports [1]

Value in Million US $

		Eastern Europe [2]	Bulgaria	Czecho-slovakia	East Germany	Hungary	Poland	Romania
1964	Total imports	62	2	9	16	4	15	16
	Imports of machinery and transportation equipment	43	1	8	14	2	7	11
	Percent	70	50	90	90	60	**47**	70
1965	Total imports	107	1	19	26	15	19	27
	Imports of machinery and transportation equipment	70	1	17	23	9	10	10
	Percent	65	50	90	90	60	**53**	**37**
1966	Total imports	140	2	22	36	16	30	34
	Imports of machinery and transportation equipment	119	1	20	32	11	22	27
	Percent	85	50	90	90	70	**73**	80
1967	Total imports	135	2	19	34	12	29	39
	Imports of machinery and transportation equipment	108	1	14	31	9	24	31
	Percent	80	50	**74**	90	75	**83**	80
1968	Total imports	143	2	24	37	14	25	41
	Imports of machinery and transportation equipment	114	1	19	33	9	19	31
	Percent	80	50	**79**	90	65	**76**	75
1969	Total imports	124	2	26	30	10	18	38
	Imports of machinery and transportation equipment	93	1	19	27	6	10	30
	Percent	75	50	**73**	90	60	**56**	80
1970	Total imports	190	1	31	42	18	26	72
	Imports of machinery and transportation equipment	133	1	26	38	11	21	30
	Percent	70	50	**84**	90	60	**81**	**42**
1971	Total imports	239	8	34	44	17	37	99
	Imports of machinery and transportation equipment	167	5	28	40	10	33	55
	Percent	70	60	**82**	90	60	**89**	**56**
1972	Total imports	265	5	29	48	33	28	122
	Imports of machinery and transportation equipment	186	3	23	43	20	23	65
	Percent	70	60	**79**	90	60	**82**	**53**
1973	Total imports	300	8	40	50	46	33	129
	Imports of machinery and transportation equipment	195	5	29	45	24	24	71
	Percent	65	60	**72**	90	60	**73**	55

[1] Data for total Chinese imports are from the official trade handbooks of the individual countries for most years. Percent data in boldface type has been calculated from data on China's machinery and transportation equipment imports for that year as reported by the trading partner. All other percents are estimates which were used to derive the value of machinery and transportation equipment imports.

[2] Because total Eastern Europe percentages have been rounded to the nearest 5 percent, machinery and transportation equipment imports for the individual countries may not add to the totals shown.

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Table A-3

China: Imports of Machinery and Transportation Equipment from the USSR[1]

USSR Nomenclature	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961
Machinery, equipment, and transportation facilities (1)	156,535	161,191	198,650	229,549	304,718	271,530	317,929	597,460	503,868	108,079
Metal processing equipment (10)	....	....	....	3,010	4,923	3,454	7,025	6,606	4,488	1,631
Of which:										
Metal cutting machine tools (100)	....	....	....	2,098	1,327	2,873	7,025	6,606	3,358	967
Power and electrical engineering equipment (11)	6,651	9,602	14,398	13,582	10,346	7,852	12,381	24,424	21,448	8,629
Of which:										
Power engineering equipment (110)	1,633	2,125	7,640	8,138	7,218	3,911	9,654	18,641	5,615	2,077
Electrical engineering equipment (111)	5,018	7,451	6,758	5,143	3,097	3,942	2,727	5,783	....	....
Mining, metallurgical, and petroleum equipment (12)	....	....	....	16,258	20,107	14,762	11,619	8,843	7,625	1,861
Of which:										
Equipment for geological survey, engineering, and petroleum and gas extraction (128)	....	....	....	13,159	19,506	12,790	10,899	7,601	6,221	689
Material handling equipment (13)	....	....	....	1,891	1,506	2,222	3,463	1,847	4,956	1,457
Food and light industry equipment (14)	....	....	....	307	127	253	207	571	147	251
Equipment for chemical, paper, and construction industries (15)	....	....	....	8,309	8,646	8,157	6,834	9,866	11,828	2,386
Equipment for complete industrial installations[2] (16)	40,654	49,271	93,067	141,486	216,928	209,004	166,144	399,721	373,806	78,901
Instruments, laboratory and medical equipment, bearings, and abrasives (17)	3,368	5,795	6,723	7,948	8,055	10,928	12,858	14,191	12,909	3,337
Of which:										
Bearings (173)	1,014	2,611	3,757	2,373	1,332	1,933	1,738	5,069	3,591	1,903
Tractors and agricultural machinery and equipment (18)	....	....	....	10,461	9,235	2,455	19,824	8,505	9,102	1,811
Of which:										
Tractor and spare parts (180)	....	....	....	8,725	7,012	1,802	12,168	1,333	5,682	1,061
Agricultural machinery (181)	....	....	....	1,511	2,022	532	7,086	3,961	3,018	330
Transportation facilities and auxiliary equipment (19)	...	....	....	23,353	20,872	7,142	68,684	113,278	53,526	7,334
Of which:										
Railroad rolling stock and equipment (190)	....	....	....	111	1,563	316	5,032	74,647	5,132	352
Motor vehicles (194)	....	....	....	22,628	16,324	5,290	61,589	33,595	11,906	6,558
Vessels and port equipment (192)	....	....	....	314	2,932	1,625	2,065	1,718	3,188	124
Air transportation facilities (193)	....	....	....	....	....	....	....	....	....	....
Other machinery and transportation equipment[3]	105,862	96,523	84,462	2,944	3,973	5,301	8,890	9,608	4,033	481

[1] Data are from the official Soviet trade handbooks, **Vneshnyaya torgovlya, SSR** and are presented according to the Soviet trade nomenclature with category numbers in parentheses. Ruble values have been converted to US dollars at the official exchange rate for each year. Data are f.o.b. the Soviet border.

[2] Some items in this category are not included in machinery and equipment in the Standard International Trade Classification (SITC). However, their value is probably not large.

[3] The total of machinery and transportation equipment as given in the handbook less the individual commodities reported.

Table A-3

Machinery and Transportation Equipment from the USSR[1]

Thousand US $

	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973
	597,460	503,868	108,079	27,324	42,184	57,710	76,988	86,209	24,614	14,898	21,580	16,380	54,638	91,754	101,139
	6,606	4,488	1,631	68	258	459	5,356	7,720	771	247	1,140	1,396	3,839	5,254	1,872
	6,606	3,358	967	68	258	121	5,322	7,720	771	247	1,140	1,396	3,839	5,251	1,872
	24,424	21,448	8,629	1,353	772	699	2,100	2,771	820	378	627	1,997	1,654	12,763	17,272
	18,641	5,615	2,077	523	187	333	1,508	1,109	119	177	1	657	...	9,273	16,975
	5,783	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	8,843	7,625	1,861	73	702	840	960	2,463	530	330	171	166	99	....	....
	7,601	6,221	689	2	113	751	863	1,697	530	330	171	166	99	...	...
	1,847	4,956	1,457	176	63	79	21	956	542	....	3,000	970	386	535	3
	571	147	251	....	6	22	3	4	....	....	....	....	....	....	....
	9,866	11,828	2,386	377	430	896	8,884	8,159	399	284	898	82	34	928	125
	399,721	373,806	78,901	8,844	14,568	12,428	3,903	256	1,667	308	....	....	....	....	....
	14,191	12,909	3,337	2,077	3,132	5,183	9,090	6,452	1,829	1,861	651	353	2,456	2,459	1,074
	5,069	3,591	1,903	728	690	1,158	240	397	317	250	208	47	1,926	2,101	824
	8,505	9,102	1,811	1,560	7,542	7,108	12,845	14,631	2,481	2,907	3,678	2,220	3,578	3,012	3,094
	1,333	5,682	1,061	1,087	6,787	6,875	10,311	11,275	2,072	2,786	3,193	1,960	3,216	2,191	2,639
	3,961	3,018	330	11	290	172	2,162	356	109	121	181	260	362	320	155
	113,278	53,526	7,334	12,299	14,173	29,539	32,716	41,483	14,549	7,849	10,725	8,588	41,378	64,498	73,092
	74,647	5,132	352	....	17	16	...	...	...	...	...	...	...	...	...
	33,595	11,906	6,558	10,099	11,525	9,861	18,923	27,076	3,818	5,797	5,333	3,780	7,625	10,995	16,871
	1,718	3,188	124	226	191	28	...	...	...	...	...	...	...	...	...
	...	...	...	1,974	2,407	19,601	13,780	14,398	10,728	20,054	5,192	1,808	33,754	53,502	56,219
	9,608	4,033	481	497	538	457	1,110	1,314	1,026	737	690	368	1,214	2,305	4,607

[1] Trade nomenclature with category numbers in Soviet border.

(SITC). However, their value is probably not

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Table A-4

China: Imports of Machinery and Transportation Equipment from Czechoslovakia[1]

Thousand US $

SITC Nomenclature	1967	1968	1969	1970	1971	1972	1973
Machinery and transport equipment (7)	**13,761**	**18,789**	**18,787**	**26,320**	**27,782**	**22,748**	**28,990**
Non-electric machinery (71)	**3,631**	**6,761**	**7,513**	**8,796**	**15,120**	**9,961**	**9,399**
Of which:							
Metalworking machinery (715)	3,631	5,856	1,669	6,212	11,898	5,697	6,571
Electric machinery (72)	**1,356**	**2,671**	**2,099**	**6,665**	**4,531**	**4,272**	**8,950**
Of which:							
Electric power machinery and switchgear (722)	1,356	2,671	2,099	6,665	4,531	4,272	8,950
Transport equipment (73)	**6,169**	**7,835**	**9,099**	**10,308**	**8,083**	**8,400**	**10,565**
Of which:							
Road motor vehicles (732)	6,169	7,835	9,099	10,308	8,083	8,400	10,565
Other machinery and transport equipment[2]	**2,395**	**1,522**	**76**	**551**	**48**	**115**	**76**

[1] Data are from **Facts on Czechoslovak Foreign Trade,** various years, published by the Chamber of Commerce of Czechoslovakia. The source lists commodities according to SITC. SITC codes are in parentheses. Values are converted from Czechoslovak crowns to US dollars at the official commercial exchange rate for each year. Data are f.o.b. the Czechoslovak border.

[2] The total of machinery and transportation equipment as given in the source less the individual commodities reported.

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Table A-5

China: Imports of Machinery and Transportation Equipment from Poland[1]

Thousand US $

USSR Nomenclature	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968
Machinery, equipment, and transportation facilities (1)[2]	47,223	25,558	34,880	24,986	14,686	8,064	6,946	10,140	21,722	23,743	19,405
Metal processing machinery (10)	2,905	2,926	1,601	774	....	70	61	353	2,728	587	2,126
Of which:											
Metal cutting machine tools 109	2,648	2,737	1,506	756	....	70	61	353	2,728	552	1,987
Power and electrical engineering equipment (11)	4,900	2,383	1,763	4,472	1,021	16	....	1,132	1,441	4,305	1,552
Of which:											
Power engineering equipment 110	1,697	2,106	1,707	4,469	965	....	....	1,132	1,441	4,305	1,552
Mining, metallurgical, and petroleum equipment (12)	6,086	6,360	67	23	58	....	....	....	....	....	....
Material handling equipment (13)	82	71	348	25	118	....	....	....	....	....	....
Food and light industry equipment (14)	4	....	....	....	50	....	....	....	....	....	....
Equipment for chemical, paper, and construction industries (15)	2,014	1,146	1,988	569	261	....	....	178	4,814	5,609	3,960
Equipment for complete industrial installations (16)	5,090	7,404	19,670	15,667	8,522	2,762	190	389	309	3,993	9,774
Instruments, laboratory and medical equipment, bearings, and abrasives (17)[3]	1,900	550	407	270	186	70	....	85	134	....	....
Of which:											
Electrical measuring instruments 170	1,313	208	168	38	148	70	....	70	10	....	....
Tractors and agricultural machinery and equipment (18)	9,213	1,197	1,814	1,534	30	242	1,199	489	325	313	245
Of which:											
Tractors and spare parts 180	3,685	1,193	1,814	1,434	30	242	930	489	56	....	245
Agricultural machinery 181	5,528	....	....	100	....	....	269	....	269	....	....
Transportation facilities and auxiliary equipment (19)	15,029	3,521	7,222	1,652	4,440	4,904	5,496	7,514	11,971	8,936	1,418
Of which:											
Railroad rolling stock and equipment 190	1,059	2,852	5,163	1,080	18	....	....	....	....	....	....
Motor vehicles 191	5,616	512	1,924	208	67	619	1,318	3,266	3,930	877	434
Vessels and port equipment 192	8,325	157	131	364	4,362	4,285	4,178	4,248	8,041	8,059	984

[1] Data are from official Polish trade handbooks, **Statystyka handlu zagranicznego** for 1958-63 and **Rocznick statystyczny handlu zagranicznego** for 1964-68 and are presented according to the Soviet trade nomenclature with category numbers in parentheses. Values have been converted from Polish zlotys to US dollars at the official commercial exchange rate for each year. Data are f.o.b. the Polish border.

[2] Totals for machinery and equipment and for the two-digit categories are the sums of the individual commodities reported in the handbooks.

[3] Some items in this category are not included in machinery and transport equipment in the Standard International Trade Classification. However, their value is probably not large.

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Table A-6

China: Imports of Machinery and Transportation Equipment from Hungary[1]

Thousand US $

USSR	1952	1953	1954	1955	1956	1957	1958	1959
Machinery, equipment, and transportation facilities (1)[2]	6,378	18,407	22,164	25,973	18,652	19,992	21,342	14,299
Metal processing machinery (10)	2,204	3,128	802	255	901	2,090	2,993	713
Of which:								
Metal cutting machine tools (100)	2,204	3,128	802	255	901	2,090	2,993	713
Power and electrical engineering equipment (11)	....	....	....	1,235	579	2,375	6,428	3,874
Mining, metallurgical, and petroleum equipment (12)	551	637	3,096	2,880	590	....	....	....
Of which:								
Equipment for geological survey, engineering, and petroleum and gas extraction (128)	83	539	1,940	243	590	....	....	....
Material handling equipment (13)	595	503	26	573	....	....	....	....
Food and light industry equipment (14)	....	....	....	....	....	....	....	....
Equipment for chemical, paper, and construction industries (15)	185	764	1,571	3,301	3,662	2,828	2,422	3,692
Equipment for complete industrial installations (16)	....	....	....	....	....	....	....	....
Instruments, laboratory, and medical equipment, bearings, and abrasives (17)[3]	1,051	1,387	710	547	62	....	....	....
Tractors and agricultural machinery and equipment (18)	577	2,479	1,110	2,007	4,101	6,093	4,665	5,030
Transportation facilities and auxiliary equipment (19)	1,215	9,509	14,849	15,175	8,757	6,606	4,836	990
Of which:								
Railroad rolling stock and equipment (190)	....	....	....	1,460	....	....	....	....
Motor vehicles (191)	1,171	6,378	8,961	7,585	4,108	1,546	1,548	990
Vessels and port equipment (192)	....	....	....	1,423	711	765	....	....

[1] Data are from official Hungarian statistical handbooks, **Statisztikai evkonyv**, and are presented according to the Soviet trade nomenclature with category numbers in parentheses. Values have been converted from Hungarian forints to US dollars at the official commercial exchange rate for each year. Data are f.o.b. the Hungarian border.

[2] Totals for machinery and transportation equipment and for the two-digit categories are the sums of the individual commodities reported in the handbooks.

[3] Some items in this category are not included in machinery and transport equipment in the Standard International Trade Classification. However, their value is probably not large.

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Appendix B

Sources and Methods for Estimating China's Trade in Machinery and Transportation Equipment with the Non-Communist Countries

This Appendix contains data on China's trade in machinery and transportation equipment with the non-Communist countries and a methodology for deflating current values of this trade into constant 1957 dollar values. The data are compiled from publications of the US government, the United Nations, and the Organization for Economic Cooperation and Development, and from official statistics of China's trade partners.

Tables B-1 and B-2 present current value data on China's imports of machinery, by commodity and by country of origin, respectively. Table B-3 provides a commodity breakdown on the current values of China's machinery exports. Tables B-4 and B-5 present two methods of constructing price indexes of China's machinery imports. Table B-6 provides information on converting China's exports from c.i.f., country of destination to f.o.b., China. In Table B-7 current values of China's imports of machinery are deflated into constant 1957 dollar values.

A Paasche index of the prices China pays for machinery is used to deflate the current values of China's imports into constant 1957 dollar values. The formula for a Paasche price index normally is presented as a weighted average of price relatives or as a weighted aggregative:[4]

$$\frac{\sum\left(\frac{p_i^1}{p_i^0}\right)(p_i^0 q_i^1)}{\sum p_i^0 q_i^1} = \frac{\sum p_i^1 q_i^1}{\sum p_i^0 q_i^1}$$

where: lower case letters "p" and "q" refer to prices and quantities of the items in the sample, denoted by subscript "i," and superscripts "0" and "1" are the base (1957)- and current-years, respectively. The Paasche rather than the Laspeyres index of prices is used to deflate imports because dividing current values of imports by the Paasche index yields the value of current quantities imported at 1957 prices:

$$\frac{\sum p_i^1 q_i^1}{\left(\frac{\sum p_i^1 q_i^1}{\sum p_i^0 q_i^1}\right)} = \sum p_i^0 q_i^1$$

The weighted average of price relatives and the weighted aggregative are unsuitable in the above forms for construction of a Paasche price index for China. Since neither price nor quantity data – only current values – are available on China's trade in machinery and transportation equipment, it is convenient to use the following algebraically identical form of the Paasche index, which reduces to the weighted aggregative:

$$\frac{1}{\sum\left(\frac{p_i^0}{p_i^1}\right)\frac{p_i^1 q_i^1}{\sum p_i^1 q_i^1}} = \frac{1}{\sum\frac{p_i^0 q_i^1}{\sum p_i^1 q_i^1}} = \frac{\sum p_i^1 q_i^1}{\sum p_i^0 q_i^1}$$

[4] For further details, see Bruce D. Mudgett, **Index Numbers** (New York: John Wiley & Sons, Inc., 1951) and Irving Fisher, **The Making of Index Numbers** (Boston: Houghton Mifflin Company, 1922).

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In this form, the weight attached to each inverse price relative (p_i^0/p_i^1) is merely the share of each item in the total value of the sample ($p_i^1q_i^1/\sum p_i^1q_i^1$). Current value data can be derived directly from trade data, but price relatives must be estimated.

Ideally, a price index for China's imports of machinery should be estimated from trading partner export price indexes and the value of China's imports on a country-by-commodity basis. If these data were available for each country from which China imports machinery, an index of the export prices of each category of machinery could be weighted by the value of China's imports in that category. Such an estimate would take account of exchange rate fluctuations and price changes for individual types of machinery in the various countries. Only one assumption would be required: that China is a price-taker. While China is not a monopsonist vis-a-vis the world, MACHIMPEX, the foreign trade corporation that handles all of China's trade in machinery, is a monopolist vis-a-vis internal consumers and probably derives some monopsonist powers from the ability to offer potentially large markets to individual firms.

Unfortunately, data are not available on a country-by-commodity basis. For that reason, two separate methods of estimating price relatives each taking account of different factors that determine prices are given in Tables B-4 and B-5. The first method (Index I) uses US wholesale prices for various types of machinery and transport equipment as estimates of price relatives, and it takes account of price variations between machinery commodities. The second method (Index II) uses machinery export unit value indexes of countries that are major suppliers of machinery to China (as estimates of price relatives) and takes account of variations in the rates of inflation and in the exchange rates between countries, but not of variations in prices between commodities.

For the indexes to reflect accurately the changes in the prices of machinery that China imports, the assumptions underlying each must be valid. Index I assumes that exporting nations compete perfectly in all lines of machinery production, and thus that US wholesale price indexes are representative of changes in world export prices for machinery. In addition, because of the high elasticity of substitution between competing types of machinery, price trends for similar types of machinery are correlated. Hence, even if China's imports of machinery are not of the same quality as those types of machinery produced in the United States, the price trends will be similar. Index II assumes that each exporting country is completely specialized in the production of different lines of machinery and that export price levels in different countries move independently of one another because of variations in economic cycles and in the exchange rates. Hence, China's import price index will rise or fall, depending on whether the share of imports from higher priced suppliers increases or decreases, respectively.

Neither set of assumptions is completely true, yet each has some measure of validity. Because the United States is the world's largest producer of machinery and, until recently, the largest exporter, US wholesale price indexes reflect trends in world prices. On the other hand, if exporting nations were perfectly competitive in all lines of machinery production, export price indexes would be the same for all countries (assuming other factors such as transportation costs were equal). The fact that unit value indexes for machinery exports differ substantially between countries (see Table B-5) suggests that countries specialize to some degree in producing different types of machinery.

China has allowed politics to "take command" in the choice of trade partners. For instance, as a result of the "Nagasaki flag incident" in May 1958, China cut off virtually all trade with Japan. In so doing, China eliminated for a time one of the lowest

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cost suppliers of machinery. Index II is valid to the extent that China allows non-economic considerations to influence the direction of trade.

As indicators of price trends, unit value indexes generally are less reliable than true price indexes; much depends on the units used and the comparability of the commodities from which an average (unit) value is derived. Unit value indexes may be biased to the high side during periods of great technological change, since such changes may result in improved quality (and higher prices) not reflected in the units compared. This is a particular problem in the case of machinery unit value indexes, where a great variety of machines may be subsumed under a general classification, even at the most detailed level of specifications.

For these reasons the true index of China's import prices for machinery and transportation equipment probably lies somewhere between Indexes I and II. The final price index used to deflate China's imports is the result of arbitrarily assigning twice as much significance to the commodity weighted price index as to country weighted unit value index (see Figure B-1). This methodology, although somewhat subjective, is probably more reliable than obtaining sketchy price data on a small sample of machines which may or may not be comparable over time.

Unfortunately the methodology used to deflate China's imports of machinery would not be valid if extended to China's exports. US wholesale prices probably have little relationship to the prices at which China sells machinery. Machinery import unit value indexes for countries that import China's machinery reflect prices of imports from industrialized countries, not from China. In the absence of specific information on export prices for China's machinery, China's machinery export prices are assumed to have remained stable over much of the period.

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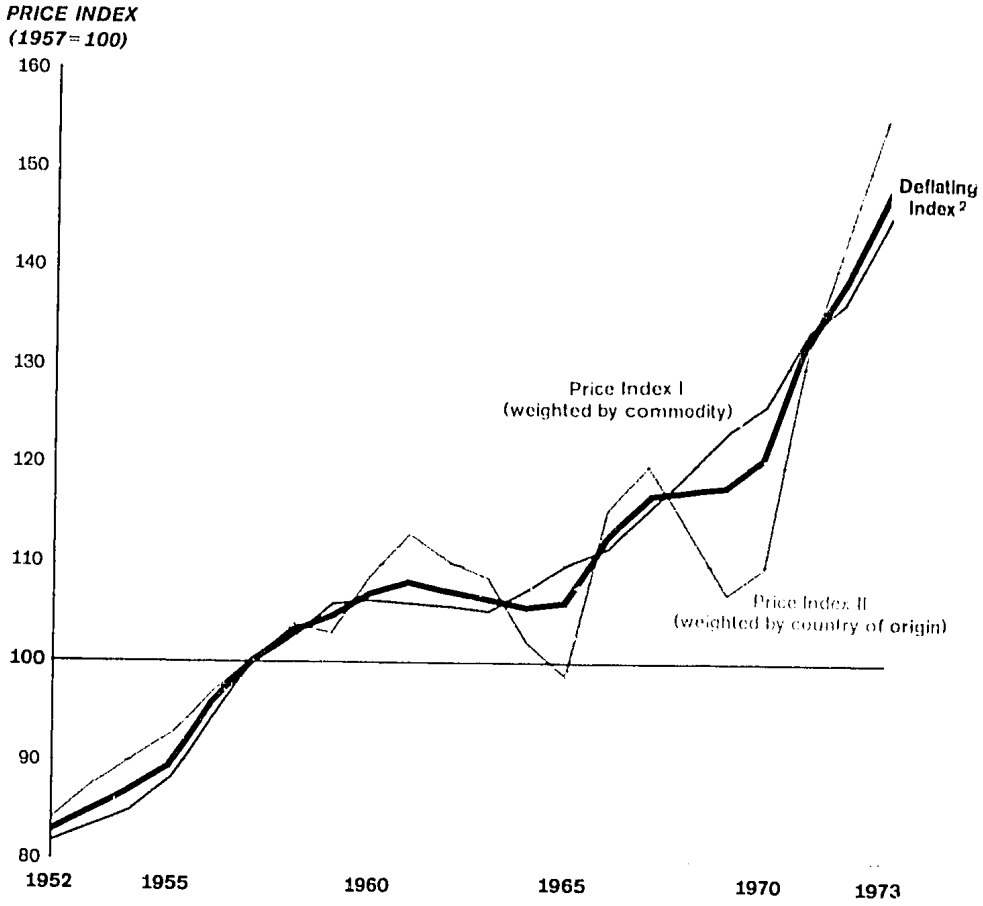
Figure B-1

CHINA: Comparison of Paasche Price Indexes for Imports of Machinery and Transportation Equipment[1]



[1] Data are from Table B-7.

[2] The Paasche price index used to deflate China's imports of machinery is a weighted average of Indexes I and II, giving twice the weight to Index I.

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Table B-1

China: Imports of Machinery and Transportation Equipment from N
by Commodity Groups of the SITC[1]

SITC Nomenclature[2]	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962
Machinery and transport equipment[3] (7)	**11,965**	**20,893**	**13,309**	**15,035**	**41,555**	**65,757**	**69,698**	**60,500**	**49,600**	**25,577**	**15,588**
Nonelectric machinery (71)	**8,314**	**12,747**	**5,232**	**6,222**	**22,920**	**48,669**	**51,009**	**46,779**	**25,690**	**13,101**	**8,021**
Power generating (711)	167	1,026	198	178	3,068	1,769	3,239	1,265	3,172	1,207	489
Internal-combustion engines (711.3; .4)	....	....	....	....	....	....	....	223	110	82	334
Agricultural (712)	0	1	0	0	4,898	1,858	3,806	1,119	480	965	117
Office 714	1,491	2,337	206	199	661	128	77	....	391	536	25
Metalworking (715)	29	1,303	34	62	952	4,327	5,921	9,724	12,748	1,959	1,109
Textile and leather (717)	....	....	1,568	1,316	1,848	3,453	1,715	1,115	1,267	3,029	852
Special purpose (718)	....	....	782	3,106	2,287	27,686	5,828	21,855	3,152	822	1,031
Printing and bookbinding (718.2)	....	....	....	....	....	....	....	....	101	....	....
Food-processing (718.3)	....	....	....	....	....	....	....	28	54	....	0
Construction and mining (718.4)	....	....	736	223	1,939	26,247	1,591	1,069	2,535	11	58
Appliances and parts, n.e.s. 719)	111	605	100	715	1,195	3,677	11,599	3,031	2,885	3,289	3,408
Pumps and centrifuges 719.2)	....	....	....	....	....	....	....	..	851	373	713
Mechanical handling equipment (719.3)	....	....	....	....	....	....	....	....	....	911	165
Power tools (719.52; .53)	....	....	....	....	....	....	....	32	51	20	626
Bearings (719.7)	5	6	11	83	166	2,589	12,472	1,802	1,126	672	111
Taps, cocks, and valves (719.92)	....	....	....	....	....	....	....	....	....	....	....
Transmission equipment (719.93)	....	....	....	....	....	....	....	....	....	....	....
Electric machinery (72)	**3,352**	**7,358**	**3,124**	**2,695**	**6,565**	**9,905**	**11,871**	**9,359**	**9,000**	**5,781**	**4,807**
Power and switchgear (722)	....	....	353	238	811	1,526	3,586	3,110	767	1,373	993
Electricity distributing (723)	....	....	25	211	131	108	1,163	308	136	162	39
Telecommunications (724)	....	....	....	253	895	1,281	1,170	1,111	2,217	978	1,238
Household (725)	....	....	....	....	....	....	....	....	....	....	....
Medical and radiological (726)	....	....	....	....	....	....	....	....	....	....	....
General purpose (729)	....	....	....	....	....	....	....	....	....	283	1,096
Transport equipment (73)	**177**	**446**	**4,270**	**4,815**	**12,016**	**7,183**	**6,818**	**4,362**	**14,910**	**6,695**	**2,760**
Railway vehicles (731)	17	0	0	61	60	130	150	1,952	10,928	3,515	11
Road motor vehicles (732)	86	282	321	343	7,625	4,302	5,110	1,781	1,918	1,358	2,670
Motorless road vehicles (733)	56	164	312	357	2,918	1,387	767	....	....	....	....
Aircraft (734)	1	....	0	....	....	0	....	....	....	....	....
Ships and boats (735)	0	0	3,600	4,021	1,291	1,291	151	198	1,916	1,778	73

[1] Data are derived from annual **Summary Tables, Exports to and Imports from Communist Areas in Eastern Europe and Asia, and Cuba by Free World Countries,** prepared by US Department of Commerce, International Trade Analysis Staff (ITAS). Data reflect China's imports, f.o.b., country of shipment. With minor exceptions, trade partner data refer to mainland China and exclude Outer Mongolia, Taiwan, Hong Kong, and Macao. Yugoslavia is included in the Free World in all years. Re-exports from Hong Kong to China are excluded and those from the United Kingdom and other countries included. Because commodity detail is not reported by all countries, values are necessarily understated. For additional specific information concerning trade partners and coverage see the source.

[2] Data are arranged according to Section 7 of the Standard International Trade Classification (SITC), revised edition, with all two- and three-digit (division and group) categories delineated. Some four- and five-digit categories relevant to the construction of a price index are also shown. SITC nomenclature has been paraphrased, and SITC index numbers are provided in parentheses as a reference to more precise descriptions. The table is not exhaustive; data are the sums of values for specified machinery - data for "other and unspecified" categories of the summary tables are included at the lowest identifiable levels of the SITC and are not broken out as additional subcategories. As a result, data represent minimum values and may not add to totals shown at the next higher divisions. Ellipsis marks (....) indicate that machinery imports, if any, were recorded under "other and unspecified" categories. Reporting on specific machinery under SITC 718, 719, and 729 varied, and may not be comparable from year to year.

[3] In addit
in professio
professional
1952
2,731

1963
2,318

[4] Data fo

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Table B-1

f Machinery and Transportation Equipment from Non-Communist Countries, by Commodity Groups of the SITC[1]

Thousand US $

1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973[1]
59,698	**60,500**	**49,600**	**25,577**	**15,588**	**23,747**	**61,359**	**155 047**	**237,635**	**201,887**	**105,951**	**98,642**	**248,972**	**259,247**	**245,769**	**501,200**
51,009	**46,779**	**25,690**	**13,101**	**8,021**	**8,498**	**32,247**	**104,130**	**149,418**	**130,431**	**69,715**	**67,012**	**122,922**	**146,186**	**111,929**	**185,400**
3,239	1,205	3,172	1,207	189	2,231	1,096	3,952	14,913	9,209	2,875	1,752	5,018	9,467	25,310	31,600
....	223	110	82	334	2,214	965	3,668	14,368	5,185	2,134	1,216	1,856	9,120	16,267	....
3,806	1,149	480	965	117	1,109	1,474	11,971	2,362	262	46	1,413	2,514	1,117	5,246	900
77	....	391	536	25	76	386	1,079	2,472	2,538	2,278	265	280	90	342	700
5,921	9,721	12,718	1,959	1,109	1,441	7,822	17,291	31,817	51,790	30,265	23,523	46,555	62,598	22,699	19,700
4,715	4,445	1,267	3,029	852	882	6,931	9,658	13,209	1,745	2,139	1,862	564	583	1,583	10,600
5,828	21,855	3,152	822	1,031	645	3,764	15,681	17,807	8,276	2,817	1,175	16,215	16,909	16,163	17,000
....	....	101	....	....	21	231	891	2,106	832	1,121	1,042	1,102	209	320	....
....	28	54	....	0	87	32	70	118	116	7	0	11	10	35	....
4,594	1,069	2,535	11	58	129	3,270	13,708	12,691	2,021	1,078	2,658	12,990	16 527	15,586	....
14,599	3,031	2,885	3,289	3,108	2,111	10,774	14,198	66,808	53,611	29,295	30,722	51,746	55,122	49,586	104,900
....	....	851	373	713	177	2,085	9,730	10,601	8,051	5,113	8,040	16,260	9,136	7,328	....
....	....	....	911	165	66	531	3,188	3,106	8,168	2,186	1,513	1,431	6,986	756	....
....	32	54	20	626	111	824	2,220	16,728	1,385	3,732	3,759	5,631	2,964	3,319	....
12,472	1,802	1,126	672	111	172	715	968	1,986	8,160	10,210	11,231	17,080	30,651	17,872	....
....	....	....	....	....	107	273	1,077	787	459	678	510	717	709	3,653	....
....	....	....	....	....	....	....	....	....	....	....	1,836	119	2,091	1,315	....
11,871	**9,359**	**9,000**	**5 781**	**4,807**	**5,474**	**13,538**	**33,728**	**36,886**	**28,430**	**15,566**	**12,089**	**15,599**	**12,258**	**22,566**	**45,490**
3,586	3,110	767	1,373	993	189	512	5,562	3,006	6,580	2,775	1,858	2,641	1,553	5,518	12,500
1,163	308	136	462	39	56	172	786	589	796	874	1,127	1,564	292	192	600
1,170	1,141	2,217	978	1,238	933	2,127	1,705	6,035	3,501	967	1,480	1,556	1,337	5,805	13,500
....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	Negl.
....	....	....	....	....	....	....	....	....	....	....	587	369	161	1,213	1,700
....	....	....	283	1,096	2,396	7,017	14,627	15,593	10,697	5,623	4,450	4,715	2,425	6,139	17,200
6,818	**4,362**	**14,910**	**6,695**	**2,760**	**9,775**	**15,574**	**17,189**	**51,331**	**43,026**	**20,670**	**19,541**	**110,451**	**100,803**	**111,274**	**270,400**
150	1,952	10,928	3,515	14	6	24	793	3,167	997	1,959	4,928	9,588	2,715	14,022	30,900
5,440	1,781	1,918	1,358	2,670	1,094	5,312	10,977	31,373	20,579	12,131	13,079	65,961	88,308	31,703	60,400
767	....	....	....	....	....	....	701	356	233	13	240	610	1,181	1,429	Negl.
....	....	....	....	....	8,460	3,931	....	....	....	3,232	387	18,618	2,379	5,169	63,000
451	198	1,916	1,778	73	78	6,135	4,397	15,368	20,741	2,923	851	14,720	4,869	21,281	79,900

rope and Asia, and Cuba by flect China's imports, f.o.b., a, Taiwan, Hong Kong, and those from the United King- understated. For additional

rised edition, with all two- onstruction of a price index ses as a reference to more or "other and unspecified" ken out as additional sub- ions. Ellipsis marks (....) cific machinery under SITC

[3] In addition to the types of machinery and transportation equipment presented, the Soviet trade classification system includes trade in professional and scientific instruments, roughly equivalent to SITC 861. For purposes of comparison, data on China's imports of professional and scientific instruments from non-Communist countries are as follows (in thousand US $

1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962
2,734	9,427	3,228	2,469	7,953	8,985	6,489	3,774	5,221	1,883	736

1963	1964	1965	1966	1967	1968	1969	1970	1971	1972
2,318	7,802	18,741	21,947	20,308	15,078	11,589	11,190	5,262	6,883

[1] Data for 1973 are estimates based on official data of leading suppliers of machinery and equipment to China.

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Table B-2

China: Imports of Machinery and Transportation Equipment from Non-Comm
by Country of Origin[1]

	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	
Total[2]	**15,035**	**41,555**	**65,757**	**69,698**	**60,500**	**49,600**	**25,577**	**15,588**	**23,747**	**61,359**	**155,047**	**237,635**	**2**
Of which:													
Japan	2,082	12,113	7,636	4,301	16	89	336	1,519	1,376	19,167	61,819	16,922	
France	97	5,401	7,333	1,146	1,108	8,999	6,328	398	563	3,072	16,198	19,111	
West Germany	902	5,826	6,881	17,818	12,821	11,605	2,285	2,174	2,006	8,957	20,302	50,136	
United Kingdom	568	5,034[3]	3,782	11,247	8,610	15,228	5,960	3,723	13,762	17,759	27,032	11,652	
Italy	33	90	327	2,926	759	766	1,205	569	249	1,192	8,431	11,718	
Switzerland	2,427	4,424	5,252	6,077	8,728	1,655	1,142	443	462	2,254	7,207	11,580	
Sweden	472	1,220	23,523[4]	7,505	5,173	3,984	1,968	1,125	446	958	2,735	9,230	
Finland	7,060	1,754	2,745	1,340	14,330	302	203	33	52	74	452	1,812	
Norway	0	12	0	401	19	1,830	1,686	0	16	2,396	0	3,051	
Denmark	30	569	315	2,949	343	512	2,637	3,256	288	743	1,591	2,298	
Austria	122	963	1,563	3,978	4,372	187	71	120	109	184	395	924	
Netherlands	45	51	1,131	749	138	708	556	126	640	839	8,202	5,361	
Belgium-Luxembourg	466	1,517	3,759	2,228	1,321	1,337	622	373	74	225	586	548	
Yugoslavia	0	942	145	60	0	0	0	0	0	0	0	0	
Malaysia Singapore	0	0	19[6]	379	0	0	0	0	0	0	0	0	
Morocco	0	0	0	0	230	161	422	1,662	633	3,151	95	0	
Canada	0	0	0	0	17	0	4	186	0	0	1	213	
Pakistan	0	0	0	0	0	0	0	0	0	[7]	0	0	
United States	0	0	0	0	0	0	0	0	0	0	0	0	

[1] Data for individual countries are derived principally from tables in the **Country-by-Commodity Series, Exports to and Imports from Communist Areas in Eastern Europe and Asia, and Cuba by Free World Countries**, prepared by US Department of Commerce, International Trade Analysis Staff (ITAS). Data reflect China's imports, f.o.b., country of origin. With minor exceptions, trade partner data refer to mainland China and exclude Outer Mongolia, Taiwan, Hong Kong, and Macao. Yugoslavia is included in the Free World for all years. For additional specific information concerning trade partners and coverage see the source.

[2] Totals are from US Department of Commerce, **Summary Tables** as presented in Table B-1. Data for exporting countries may not sum to totals shown because: (1) only those countries which exported US $ 1 million or more of machinery in at least one year are presented in Table B-2; (2) the ITAS does not publish its tables for countries whose total trade with Communist countries is less than a standard minimum; (3) the ITAS occasionally revises data after publication of the **Country-by-Commodity Series** and prior to compilation of the **Summary Tables**. For the latter two reasons, data from the **Country-by-Commodity Series** were compared with United Nations' and OECD statistics and amended by reference to primary sources as noted below. Totals for 1973 are from **Country-by-Commodity Tables** available at time of printing. Although re-exports from the United Kingdom and other countries are included in the totals, the re-exports from Hong Kong are excluded because inclusion might result in double-counting. Hong Kong's re-exports of machinery and transportation equipment to China are as follows (in thousand US $):

1955	1956	1957	1958	1959	1960	1961	1962	1963
573	1,437	1,347	3,490	1,624	1,781	1,463	1,251	603
1964	**1965**	**1966**	**1967**	**1968**	**1969**	**1970**	**1971**	**1972**
811	696	377	167	275	211	579	913	1,062

[3] Great Britain, Custo
Kingdom, Vol. IV, (Lon
[4] Sweden, Statistiska
December, 1957). Data
[5] Norway, Statistisk Se
ber, 1972). **Country-by-C**
[6] United Nations, Stati
Series D, New York). D
[7] US, Bureau of the Ce
Report FT 455, Annual.

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Table B-2

orts of Machinery and Transportation Equipment from Non-Communist Countries, by Country of Origin [1]

Thousand US $

961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	
577	15,588	23,747	61,359	155,047	237,635	201,887	105,951	98,642	248,972	259,247	245,769	501,192	Total [1]
													Of which:
336	1,519	1,376	19,167	61,819	46,922	38,789	29,278	44,378	111,273	89 725	75,421	179,099	Japan
328	398	563	3,072	16,198	49,111	34,998	15,711	12,191	45,040	82,981	27,760	46,699	France
285	2,174	2,006	8,957	20,302	50,136	14,769	27,336	12,547	19,538	25,994	44,697	45,265	West Germany
900	3,723	13,762	17,759	27,032	41,652	28,032	6,977	5,926	9,485	17,221	27,369	66,550	United Kingdom
205	569	249	1,192	8,431	14,748	15,324	7,214	10,346	13,421	14,176	20 [illegible]23	28,456	Italy
142	443	462	2,284	7,207	11,580	10,965	7,830	4,922	9,681	8,813	6,502	10,048	Switzerland
068	1,125	446	958	2,735	9,230	14,258	5,773	5,118	3,090	3,235	1,086	2,634	Sweden
203	33	52	11	452	1,812	1,751	499	769	3,693	1,903	3,987	1,971	Finland
686	0	16	2,396	0	3,051	1,826	0	665	6,039	2,888	9,501 [5]	3,157	Norway
637	3,256	288	743	1,591	2,298	3,528	745 [6]	681	2,917	738	5,640	2,047	Denmark
71	120	109	184	395	921	6,177	2,530	191	1,088	465	1,157	1,145	Austria
556	126	640	839	8,202	5,364	753	188	273	825 [6]	253	380	2,724	Netherlands
622	373	74	225	586	548	217	596	233	121	157	24	772	Belgium-Luxembourg
6	0	0	0	0	0	0	0	0	348	1,613	13,490	30,100	Yugoslavia
0	0	0	0	0	0	0	250	93	10	341	444	3,025	Malaysia/Singapore
422	1,662	633	3,451	95	0	139	680	0	0	8,193	4,331	6,896	Morocco
4	186	0	0	1	213	58	108 [6]	0	109 [6]	481	260	1,088	Canada
0	0	0	0	0	0	6	0	0	18,249	68	0	N.A.	Pakistan
0	0	0	0	0	0	0	0	0	0	0	2,015 [7]	68,756 [7]	United States

eries, Exports to and Imports by US Department of Com- igin. With minor exceptions, Macao. Yugoslavia is included age see the source.

for exporting countries may of machinery in at least one de with Communist countries **Country-by-Commodity Series** **y-by-Commodity Series** were noted below. Totals for 1972 United Kingdom and other ght result in double-counting. sand US $):

[3] Great Britian, Customs and Excise Department, Statistical Office, **Annual Statement of the Overseas Trade of the United Kingdom,** Vol. IV, (London, 1956).

[4] Sweden, Statistiska centralbyran, **Utrikeshandel 1957, manadsstatistik** (Foreign Trade 1957, Monthly Bulletin), (Stockholm, December, 1957). Data in **Country-by-Commodity Series** revised downward from US $26,140,000.

[5] Norway, Statistisk Sentralbyra, **Manedsstatistikk Over Utenrikshandelen** (Monthly Bulletin of External Trade), (Oslo, December, 1972). **Country-by-Commodity Series'** figure of US $7,819,000 based on incorrect Kroner/Dollar conversion factor.

[6] United Nations, Statistical Office, **Commodity Trade Statistics According to the Standard International Trade Classification,** Series D, (New York). Data not published in **Country-by-Commodity Series.**

[7] US, Bureau of the Census, **US Exports-World Areas, Country, Schedule B Commodity Groupings, and Method of Transportation,** Report FT 455, Annual, (Washington, D.C.).

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Table B-3

China: Exports of Machinery and Transportation Equipment to Non-Communist
by Commodity Group of the SITC[1]

SITC Nomenclature[2]	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964
Machinery and transport equipment (7)	**89**	**44**	**155**	**1,506**	**2,476**	**2,843**	**7,081**	**9,546**	**6,610**	**4,170**	**5,444**	**11,073**	**10,051**
Nonelectric machinery (71)	**31**	**27**	**113**	**1,154**	**1,449**	**1,959**	**3,998**	**5,152**	**3,311**	**1,727**	**2,013**	**2,947**	**3,559**
Power generating (711)	0	0	0	16	1	2	52	179	127	6	1	111	0
Agricultural (712)	0	0	0	0	0	0	7	1	36	7	....	0	0
Office (714)	2	5	10	13	56	22	75	35	38	18	15	19	72
Metalworking (715)	0	0	0	58	12	130	123	815	1,007	136	327	699	1,187
Textile and leather (717)	....	....	....	924	1,298	1,451	2,897	2,875	1,180	540	800	982	1,147
Special purpose (718)	....	....	....	97	....	72	135	173	80	91	10	87	68
Appliances and parts, n.e.s.(719)	....	7	2	42	59	200	101	666	255	509	795	1,049	585
Electric machinery (72)	**28**	**12**	**22**	**224**	**845**	**666**	**2,093**	**2,577**	**2,013**	**1,666**	**1,545**	**2,434**	**3,452**
Power and switchgear (722)	....	....	....	....	....	....	74	142	33	16	11	35	116
Electricity distributing (723)	....	....	....	....	....	....	....	....	....	....	....	....	....
Telecommunications (724)	....	....	....	....	....	....	286	392	287	65	8	101	190
Household (725)	....	....	....	....	....	....	....	....	....	....	....	....	....
Medical and radiological (726)	....	....	....	....	....	....	....	....	....	....	....	....	....
General purpose (729)	....	....	....	....	....	....	....	....	....	....	....	1	1
Transport equipment (73)	**6**	**4**	**0**	**126**	**173**	**718**	**989**	**1,87**	**1,269**	**777**	**1,886**	**5,678**	**1,688**
Railway vehicles (731)	0	0	0	0	0	0	5	0	0	0	1,256	1,632	0
Road motor vehicles (732)	2	0	0	0	12	4	28	79	232	106	24	1	79
Motorless road vehicles (733)	0	0	0	0	0	0	0	0	0	0	0	0	0
Aircraft (734)	0	0	0	125	161	205	949	1,486	960	540	532	644	670
Ships and boats (735)	4	4	....	0	0	0	0	0	0	0	0	263	330

[1] Data are derived from annual **Summary Tables, Exports to and Imports From Communist Areas in Eastern Europe and Asia, and Cuba by Free World Countries,** prepared by US Department of Commerce, International Trade Analysis Staff (ITAS). Data reflect China's exports, c.i.f., country of destination. With minor exceptions, trade partner data refer to mainland China and exclude Outer Mongolia, Taiwan, Hong Kong, and Macao. Yugoslavia is included in the Free World in all years. Because commodity detail is not reported by all countries, values are necessarily understated. For additional specific information concerning trade partners and coverage see the source.

[2] Data are arranged according to Section 7 of the Standard International Trade Classification (SITC), revised edition, with all two- and three-digit (division and group) categories delineated. SITC nomenclature has been paraphrased, and SITC index numbers are provided in parentheses as a reference to more precise descriptions. The table is not exhaustive; data are the sums of values for specified machinery. Data for "other and unspecified" categories of the summary tables are included at the lowest identifiable levels of the SITC and are not broken out as additional subcategories. As a result, data represent minimum values and may not add to totals shown at the next higher divisions. Ellipsis marks (....) indicate that machinery exports, if any, were recorded under "other and unspecified" categories. Reporting on specific machinery under SITC 718, 719, and 729 varied, and may not be comparable from year to year.

[3] Datum for 1973 is an estim

[4] In addition to the types of trade in professional and scien exports of professional and scie

1952	1953	1954	1
54	69	16	

1963	1964	1965	1
137	264	883	

Table B-3

achinery and Transportation Equipment to Non-Communist Countries,
by Commodity Group of the SITC[1]

Thousand US $

1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973[3]
9,546	**6,610**	**4,170**	**5,444**	**11,073**	**10,051**	**17,839**	**22,231**	**20,117**	**23,702**	**28,197**	**44,534**	**65,432**	**62,601**	**75,000**
5,152	**3,311**	**1,727**	**2,013**	**2,947**	**3,559**	**6,929**	**9,591**	**8,975**	**9,981**	**10,921**	**21,349**	**33,091**	**31,475**	....
179	127	6	1	111	0	105	828	1,357	452	777	760	2,243	2,825	....
1	36	7	....	0	0	6	0	0	11	7	177	367	155	....
35	38	18	14	19	72	76	98	123	157	231	190	295	337	....
815	1,007	136	327	699	1,187	1,063	1,371	1,372	1,767	1,998	2,312	2,860	4,032	....
2,875	1,180	540	800	982	1,147	1,101	1,186	3,218	5,219	5,701	6,267	6,622	7,122	....
173	80	91	10	87	68	11	176	102	111	111	5,126	6,747	5,165	....
666	255	509	795	1,049	585	1,444	2,938	2,743	2,234	2,060	6,287	11,050	11,239	....
3,577	**2,013**	**1,666**	**1,545**	**2,434**	**3,452**	**6,407**	**8,029**	**8,491**	**7,417**	**9,106**	**12,867**	**15,814**	**12,749**	....
142	33	16	14	35	116	528	891	787	971	1,158	2,621	3,876	1,118	....
....	....	....	....	....	....	318	158	146	76	50	808	752	851	....
592	287	65	8	101	190	373	436	510	559	643	652	1,090	1,122	....
....	....	....	....	....	....	643	929	1,500	735	1,515	988	1,161	1,180	....
....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
....	....	....	1	1	271	18	21	147	178	1,200	1,282	2,240	3,121	....
1,817	**1,269**	**777**	**1,886**	**5,678**	**1,688**	**3,598**	**4,611**	**2,648**	**4,221**	**4,778**	**10,217**	**16,524**	**14,377**	....
0	0	0	1,256	1,632	0	953	1,318	0	32	22	2,294	6,881	1,977	....
79	232	106	24	1	79	214	335	33	53	78	3,664	1,358	2,611	....
1,486	960	540	592	644	670	1,996	1,896	2,255	3,227	3,554	1,048	5,162	6,583	....
....	....	....	....	....	0	1	0	0	0	0	0	0	0	....
0	0	0	0	263	330	0	0	0	0	0	0	0	1	....

Eastern Europe and Asia,
alysis Staff (ITAS). Data
mainland China and exclude
because commodity detail
concerning trade partners

, revised edition, with all
and SITC index numbers
are the sums of values for
e lowest identifiable levels
alues and may not add to
recorded under "other and
y not be comparable from

[3] Datum for 1973 is an estimate based on official data of major importers of machinery and equipment from China.

[4] In addition to the types of machinery and transportation equipment presented, the Soviet trade classification system includes trade in professional and scientific instruments, roughly equivalent to SITC 861. For purposes of comparison, data on China's exports of professional and scientific instruments to non-Communist countries are as follows (in thousand US $):

1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962
54	69	16	47	56	120	216	296	230	1,675	160

1963	1964	1965	1966	1967	1968	1969	1970	1971	1972
137	264	883	797	*,121	1,051	1,251	1,793	1,916	2,267

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Table B-4

Index 1: A Paasche Index of Prices for China's Imports of Machinery and Transportation Equipment:[1] US Wholesale Price Indexes[2] for Machinery and Transportation Equipment Weighted by Current Values of China's

	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1
Machinery and transport equipment	**81.9**	**83.1**	**84.8**	**87.7**	**94.5**	**100.0**	**102.6**	**105.4**	**105.8**	**105.5**	**105.2**	**104.4**	**107.1**	**109.8**	**11**
Nonelectric machinery (SITC 71)	**82.2**	**82.9**	**82.5**	**86.2**	**94.3**	**100.0**	**102.6**	**105.8**	**107.9**	**108.2**	**108.9**	**109.8**	**113.2**	**115.1**	**11**
Agricultural (BLS 111)	91.1	91.6	91.5	92.2	95.6	100.0	101.1	107.1	109.1	111.1	113.7	115.1	117.2	119.1	12
Construction (BLS 112)	78.5	80.8	82.1	85.7	92.8	100.0	103.8	107.5	109.8	111.6	111.9	113.8	116.6	119.7	12
Metalworking (BLS 113)	79.1	80.6	81.9	86.2	94.3	100.0	102.5	101.9	108.0	109.0	110.8	111.2	113.3	115.5	12
General purpose (BLS 114)	77.7	79.1	81.3	81.9	93.6	100.0	101.5	101.9	105.8	105.0	105.5	106.0	106.6	107.3	11
Special industry (BLS 116)	79.0	80.8	82.0	85.9	93.6	100.0	103.2	106.2	108.9	109.6	111.2	113.5	115.5	117.8	12
Miscellaneous (BLS 119)	82.3	84.3	86.6	89.0	94.3	100.0	102.1	102.9	103.1	101.6	101.9	105.2	106.2	106.9	10
Electric machinery (SITC 72)	**80.7**	**83.0**	**84.6**	**86.0**	**92.8**	**100.0**	**102.1**	**103.6**	**103.2**	**101.9**	**100.3**	**99.3**	**98.7**	**98.7**	**10**
Electrical (BLS 117)	80.7	83.0	84.6	86.0	92.8	100.0	102.1	103.6	103.2	101.9	100.3	99.3	98.7	98.7	10
Transport equipment (SITC 73)	**88.4**	**87.9**	**88.1**	**90.7**	**95.9**	**100.0**	**103.2**	**105.5**	**103.9**	**103.6**	**103.7**	**102.8**	**103.4**	**103.7**	**10**
Motor vehicles (BLS 115)	88.3	87.9	88.1	90.7	95.9	100.0	103.2	105.5	103.9	103.7	103.7	102.8	103.1	103.6	10
Railroad equipment (BLS 141)	88.9	87.9	88.1	90.7	95.8	100.0	103.1	105.5	103.9	103.6	104.0	104.0	104.0	104.5	10

[1] The price indexes for China's imports of machinery and transportation equipment (in boldface type) are calculated by the Paasche weighting formula:

$$P^{01} = \frac{1}{\sum \frac{p_i^0}{p_i^1} \cdot \frac{p_i^1 q_i^1}{\sum p_i^1 q_i^1}}$$

where P^{01} is the Paasche index number, subscript "i" is the commodity sample, lower case letters "p" and "q" refer to prices and quantities, and superscripts "0" and "1" refer to base- and current-years, respectively. An inverse price relative (p_i^0/p_i^1) is multiplied by the current value ($p_i^1 q_i^1$) of China's imports for each commodity in the sample divided by the sum of current values $\sum p_i^1 q_i^1$ for all commodities in the sample.

The US Bureau of Labor Statistics (BLS) wholesale price indexes are used as estimates of price relatives (p_i^1/p_i^0). To construct the subaggregate price indexes for nonelectric machinery, electric machinery, and transport equipment (SITC divisions 71, 72, and 73), appropriate BLS indexes are weighted by current values obtained from Table B-1 for the SITC equivalent as follows:

Nonelectric machinery:
- BLS 111: SITC 712
- BLS 112: SITC 718.4
- BLS 113: SITC 715
- BLS 114: SITC 719.2, 719.3, 719.7, 719.92, 719.93
- BLS 116: SITC 717, 718.2, 718.3, 719.52, 719.53
- BLS 119: SITC 711.3, 711.4, 714

Electric machinery:
- BLS 117: SITC 72

Transport equipment:
- BLS 141: SITC 732, 733
- BLS 144: SITC 731

The subaggregate indexes are then reweighted by the aggregate price index for China's imports of n

The aggregate price index is constructed from the from the BLS indexes, because value data are mo categories are only partially available for early assigned. As a result, the sample size for BLS cate machinery and transportation equipment, and it a value weights average more than 99% of the total price trends for BLS categories within each di nonelectric machinery, electric machinery, and t these in the aggregate price index.

[2] US wholesale price indexes are from US Depa **Labor Statistics 1973**, (Washington, D.C. 1973), and equipment" (BLS 116) and "Railroad equip 1967-based data. Index numbers for BLS 116 are of 0.9807 is applied to the original index for moto converted to 1957 by simple division.

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Table B-4

...asche Index of Prices for China's Imports of Machinery and Transportation Equipment:[1]
...exes[2] for Machinery and Transportation Equipment Weighted by Current Values of China's Imports

1957 = 100

1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972
94.5	**100.0**	**102.6**	**105.4**	**105.8**	**105.5**	**105.2**	**104.4**	**107.1**	**109.8**	**111.9**	**115.6**	**119.4**	**123.3**	**125.7**	**132.7**	**136.3**
94.3	**100.0**	**102.6**	**105.8**	**107.9**	**108.2**	**108.9**	**109.8**	**113.2**	**115.1**	**118.3**	**122.6**	**127.1**	**130.9**	**139.6**	**144.5**	**147.0**
95.6	100.0	101.1	107.1	109.1	111.1	113.7	115.1	117.2	119.1	123.0	127.1	1[illegible]2.0	137.9	143.6	148.9	155.1
92.8	100.0	103.8	107.5	109.8	111.6	111.9	113.8	116.6	119.7	123.1	127.9	135.2	140.7	147.7	155.2	160.7
94.3	100.0	102.5	101.9	108.0	109.0	110.8	111.2	113.3	116.5	121.8	126.9	132.0	136.8	144.7	148.9	152.5
93.6	100.0	101.5	101.9	105.8	105.0	105.5	106.0	106.6	107.3	112.1	116.0	119.8	124.0	131.9	138.2	142.0
93.6	100.0	103.2	106.2	108.9	109.6	111.2	113.5	115.5	117.8	122.0	127.4	131.0	140.1	147.5	151.0	157.6
94.3	100.0	102.1	102.9	103.1	104.6	101.9	105.2	106.2	106.9	108.2	111.1	115.9	120.1	125.1	130.2	133.6
92.8	**100.0**	**102.1**	**103.6**	**103.2**	**101.9**	**100.3**	**99.3**	**98.7**	**98.7**	**100.8**	**103.7**	**105.1**	**106.7**	**110.1**	**113.6**	**114.5**
92.8	100.0	102.1	103.6	103.2	101.9	100.3	99.3	98.7	98.7	100.8	103.7	105.1	106.7	110.1	113.6	114.5
95.9	**100.0**	**103.2**	**105.5**	**103.9**	**103.6**	**103.7**	**102.8**	**103.4**	**103.7**	**103.8**	**105.3**	**108.4**	**111.8**	**115.2**	**120.9**	**131.8**
95.9	100.0	103.2	105.5	103.9	103.7	103.7	102.8	103.4	103.6	103.7	105.2	108.1	110.1	111.1	120.6	124.1
95.8	100.0	103.1	105.5	103.9	103.6	101.0	101.0	101.0	101.5	101.7	107.2	110.5	116.6	123.1	129.8	137.9

...d equipment (in boldface type) are

...mple, lower case letters "p" and "q" ... and current-years, respectively. An ...China's imports for each commodity ...dities in the sample.

...used as estimates of price relatives ...achinery, electric machinery, and ...exes are weighted by current values

The subaggregate indexes are then reweighted by the current value of imports for each SITC division to form the aggregate price index for China's imports of machinery and equipment.

The aggregate price index is constructed from the subaggregate indexes for SITC divisions, rather than directly from the BLS indexes, because value data are most complete at the division level. Value data for some BLS categories are only partially available for early years. Where data are unavailable, a zero value weight is assigned. As a result, the sample size for BLS categories ranges between 33% and 95% of the total imports of machinery and transportation equipment, and it averages 71% of the total. At the division level, however, the value weights average more than 99% of the total imports of machinery and transportation equipment. Since price trends for BLS categories within each division are highly correlated, reweighting the indexes for nonelectric machinery, electric machinery, and transport equipment gives the proper emphasis to each of these in the aggregate price index.

[2] US wholesale price indexes are from US Department of Labor, Bureau of Labor Statistics, **Handbook of Labor Statistics 1973**, (Washington, D.C. 1973), p. 317, 319. Index numbers for "Special industry machinery and equipment" (BLS 116) and "Railroad equipment" (BLS 144) from 1952 to 1960 are estimated, using 1967-based data. Index numbers for BLS 116 are annual averages of BLS 112 and 113. For BLS 144, a factor of 0.9807 is applied to the original index for motor vehicles (BLS 141). The base year of 1967 in the source is converted to 1957 by simple division.

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Table

Index II: A Paasche Index of Prices for China's Imports of Machinery and Transportation Equipment:[1]
Unit Value Indexes for Machinery Exports of China's Trading Partners[2]
Weighted by Current Values of China's Imports

	1955	1956	1957	1558	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	
China	**92.7**	**96.0**	**100.0**	**103.2**	**102.9**	**108.7**	**112.9**	**110.0**	**108.4**	**101.2**	**98.7**	**115.0**	**119.1**	**113.0**	**106.6**	**1**
Japan																
US $	86.5	89.3	100.0	108.6	111.3	108.9	99.4	96.1	89.3	80.3	77.8	77.7	82.1	81.4	85.6	
Yen	86.8	89.6	100.0	108.6	111.2	108.5	100.0	95.7	89.8	80.0	78.0	77.7	82.1	81.4	85.6	
France																
US $	111.5	114.3	100.0	104.1	104.0	119.4	124.1	126.8	130.1	136.9	148.9	157.5	164.6	164.0	166.4	1
Franc	93.0	95.3	100.0	121.6	129.2	139.5	141.8	147.9	152.0	159.8	174.0	185.3	193.7	192.9	203.2	2
West Germany																
US $	94.0	97.3	100.0	105.3	105.5	107.4	114.8	119.3	123.2	123.3	125.3	130.8	133.0	132.0	138.0	1
Deutsche mark	94.3	97.2	100.0	104.8	104.8	106.7	109.4	113.5	116.6	116.8	119.4	124.6	126.7	125.7	128.4	1
United Kingdom																
US $	90.4	93.2	100.0	101.2	101.1	105.6	106.7	109.8	112.8	113.5	117.2	121.3	124.2	116.7	119.5	1
Pound	92.1	95.7	100.0	103.3	105.1	107.6	108.7	112.0	115.2	116.3	119.6	123.9	128.3	139.1	142.1	1
Italy																
US $	102.8	96.1	100.0	96.1	96.6	102.1	106.3	104.8	108.7	110.4	105.7	101.7	109.0	109.0	110.5	1
Lira	102.8	96.1	100.0	95.9	90.7	101.7	105.6	104.1	108.3	110.3	105.6	101.7	109.0	109.0	110.5	1
Switzerland																
US $	97.9	97.9	100.0	100.5	100.2	100.4	102.3	108.2	113.5	120.6	122.6	128.3	133.4	136.5	139.6	1
Swiss Franc	97.9	97.9	100.0	101.1	98.9	100.9	103.0	109.1	111.3	121.5	123.6	128.7	133.8	136.9	140.0	1
Sweden																
US $	92.5	96.7	100.0	103.2	105.1	98.2	111.4	114.4	118.5	123.6	129.0	132.5	141.1	145.3	150.5	1
Krona	92.6	96.8	100.0	103.2	105.3	108.1	111.6	111.7	118.9	124.2	128.4	132.6	141.1	145.3	150.5	1

[1] The price index for China's imports of machinery and transportation equipment is calculated by the Paasche weighting formula:

$$P^{01} = \frac{1}{\sum \frac{p_i^0}{p_i^1} \bullet \frac{p_i^1 q_i^1}{\sum p_i^1 q_i^1}}$$

where: P^{01} is the Paasche index number, subscript "i" indicates the country sample, lower case letters "p" and "q" refer to prices and quantities, and superscripts "0" and "1" refer to base- and current-years, respectively. An inverse price relative (p_i^0 / p_i^1) is multiplied by the current value ($p_i^1 q_i^1$) of China's imports of machinery and transportation equipment from each country in the sample divided by the sum of current values ($\sum p_i^1 q_i^1$) of imports from all countries in the sample.

Unit value indexes (in US dollar equivalents) for exports of machinery and transportation equipment by China's trading partners are used as estimates of price relatives (p_i^1 / p_i^0). Current value weights for China's imports from each country in the sample are obtained directly from Table B-2. The country sample consists of the seven largest suppliers of machinery and transportation equipment to China, accounting for more than 85% of China's imports from non-Communist countries. Other suppliers are not included in the sample because China's imports are too small for a unit value index of machinery exports from those countries to be very representative of the prices China pays.

[2] Unit value indexes for exports of machinery and transportation equipment are shown both in national currency units and in US dollar equivalents. Official source indexes are linked and converted to a 1957 base by simple division. (Dashes on both sides of an index number indicate the year in which two indexes are linked). The indexes in national currency units are then multiplied by indexes of the exchange rate of US dollars to national currencies to convert to US dollar equivalents. The exchange rate indexes, not shown, are constructed from International Monetary Fund trade conversion rates for 1966 to 1973 and from spot exchange rates prior to 1966, as found in **International Financial Statistics**. Indexes in national currencies are derived from the following official statistics:

Japan: 1955–69: Office of the Prime Minister, Bureau of Statistics, **Japan Statistical Yearbook;** 1969–73: Ministry of International Trade and Industry, International Trade Policy Bureau, **Monthly Foreign Trade Statistics.** The Japanese index is a price, rather than a unit value, index.

France: Institut National de la Statistique et des Études Économiques, **Annuaire Statistique de la France** (Annual Statistics of France), and **Bulletin Mensuel de Statistique** (Monthly Bulletin of Statistics). France only publishes a volume index for machinery exports, not a unit value index. The unit value index in the table is derived by dividing an index of the total value of French exports of machinery and transport equipment by the volume index.

West Germany: Statistisches Bundesamt, **Aussenhandel: Foreign Trade, Series 5: Special Trade according to the Classification for Statistics and Tariffs (CST).**

United Kingdom: 1970–73: Department of Trade and Industry, **Trade and Industry;** 1955–70: **Board of Trade Journal.**

Italy: Instituto Centrale di Statistica, **Statistica Annuale del Commercio con l'Estero** (Annual Foreign Trade Statistics), Vol. I.

Switzerland: 1955–71: Eidgenossischen Statistischen Amt, **Statistisches Jahrbuch der Schweiz—Annuaire Statistique de la Suisse** (Statistical Yearbook of Switzerland); 1974–73: Eidgenossischen Volkswirtschaftsdepartement, **Die Volkswirtschaft: Wirtschaftliche und sozialstatistische Mitteilungen** (The Economy: Economic and Social Statistical Report), (Bern, June 1974), p. 385. The index for years prior to 1969 is only approximately comparable to the index for later years because of the lack of an official link between 1959 and 1960. The UN, **Yearbook of International Trade Statistics,** Table D (New York, 1966), p. 35 shows an increase of approximately 2% in the price of Switzerland's exports of manufactured goods between 1959 and 1960; the 2% figure is used to link the index for machinery exports in this table.

Sweden: National Institute of Economic Research, **The Swedish Economy** (Stockholm). The Swedish unit value index is for SITC 71 and 72 and does not include SITC 73. Index number for 1973 is an estimate based on the average of the index numbers for the 2d and 3d quarters.

Table B-5

Index II: A Paasche Index of Prices for China's Imports of Machinery and Transportation Equipment:[1]
Unit Value Indexes for Machinery Exports of China's Trading Partners[2]
Weighted by Current Values of China's Imports

1957 = 100

1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973
00.0	**103.2**	**102.9**	**108.7**	**112.9**	**110.0**	**108.4**	**101.2**	**98.7**	**115.0**	**119.1**	**113.0**	**106.6**	**109.7**	**131.3**	**143.5**	**154.8**
00.0	108.6	111.3	108.9	99.4	96.1	89.3	80.3	77.8	77.7	82.1	81.4	85.6	88.2	94.3	106.8	124.0
00.0	108.6	111.2	108.5	100.0	95.7	89.8	80.0	78.0	77.7	82.1	81.4	85.6	88.2	92.0	91.1	93.9
00.0	104.1	104.0	119.4	124.1	126.8	130.1	136.9	148.9	157.5	164.6	164.0	166.4	170.2	189.2	207.7	237.4
00.0	121.6	129.2	139.5	141.8	147.9	152.0	159.8	174.0	185.3	193.7	192.9	203.2	225.1	250.2	249.6	274.1
00.0	105.3	105.5	107.4	114.8	119.3	123.2	123.3	125.3	130.8	133.0	132.0	138.0	152.1	168.8	194.7	258.8
00.0	104.8	104.8	106.7	109.4	113.5	116.6	116.8	119.4	124.6	126.7	125.7	128.4	132.5	140.3	147.7	150.9
00.0	101.2	101.1	105.6	106.7	109.8	112.8	113.5	117.2	121.3	124.2	116.7	119.5	128.6	143.5	158.3	167.8
00.0	103.3	105.1	107.6	108.7	112.0	115.2	116.3	119.6	123.9	128.3	139.1	142.1	153.4	168.6	180.9	192.2
00.0	96.1	96.6	102.1	106.3	104.8	108.7	110.4	105.7	101.7	109.0	109.0	110.5	120.4	130.5	143.6	152.5
00.0	95.9	90.7	101.7	105.6	104.1	108.3	110.3	105.6	101.7	109.0	109.0	110.5	120.4	129.5	134.1	142.3
00.0	100.5	100.2	100.4	102.3	108.2	113.5	120.6	122.6	128.3	133.4	136.5	139.6	149.8	166.3	195.9	263.9
00.0	101.1	98.9	100.9	103.0	109.1	111.3	121.5	123.6	128.7	133.8	136.9	140.0	150.3	159.1	171.6	186.6
00.0	103.2	105.1	108.2	111.4	114.4	118.5	123.6	129.0	132.5	141.1	145.3	150.5	158.9	174.5	202.3	235.3
00.0	103.2	105.3	108.1	111.6	111.7	118.9	124.2	128.4	132.6	141.1	145.3	150.5	158.9	172.6	186.3	197.9

machinery and transportation equipment is calculated by the

$$\frac{1}{\sum \frac{p_i^0}{p_i^1} \bullet \frac{p_i^1 q_i^1}{\sum p_i^1 q_i^1}}$$

ubscript "i" indicates the country sample, lower case letters s, and superscripts "0" and "1" refer to base- and current-e (p_i^0 / p_i^1) is multiplied by the current value ($p_i^1 q_i^1$) of China's quipment from each country in the sample divided by the sum all countries in the sample.

dexes for exports of machinery and transportation equipment timates of price relatives (p_i^1 / p_i^0). Current value weights for e sample are obtained directly from Table B-2. The country plicrs of machinery and transportation equipment to China, imports from non-Communist countries. Other suppliers are 's imports are too small for a unit value index of machinery epresentative of the prices China pays.

achinery and transportation equipment are shown both in equivalents. Official source indexes are linked and converted on both sides of an index number indicate the year in which ational currency units are then multiplied by indexes of the urrencies to convert to US dollar equivalents. The exchange from International Monetary Fund trade conversion rates ge rates prior to 1966, as found in **International Financial** are derived from the following official statistics:

er, Bureau of Statistics, **Japan Statistical Yearbook;** 1969–73: nd Industry, International Trade Policy Bureau, **Monthly** nese index is a price, rather than a unit value, index.

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Table B-6

China: Exports of Machinery and Transportation Equipment to Non-Communist Countries, C.I.F. Country of Destination and F.O.B. China

Thousand US $

	Exports, C.I.F.[1]	Exports, F.O.B.[2]
1952	89	86
1953	41	13
1954	155	150
1955	1,506	1,462
1956	2,476	2,403
1957	2,843	2,760
1958	7,081	6,875
1959	9,546	9,268
1960	6,610	6,417
1961	4,170	4,049
1962	5,444	5,285
1963	11,073	10,750
1964	10,051	9,758
1965	17,839	17,319
1966	22,231	21,583
1967	20,147	19,531
1968	23,702	23,012
1969	26,197	25,431
1970	44,534	43,273
1971	65,432	63,526
1972	62,601	60,778
1973[3]	75,000	75,000

[1] Current value data, c.i.f., are from Table B-3.

[2] Insurance and freight charges are estimated to be 3% of the value of machinery exported based on freight charges of $65 to $75 per short ton of machinery (see National Council for US-China Trade, **Special Report No. 9: Sino-US Air and Sea Freight Rates**, Washington, D.C., 1974, pp. 22, 90) and an average value of $2,500 per ton of machinery (estimated from unit values for US machinery and transportation equipment in US Bureau of Census, Report FT 455, 1972 Annual, **US Exports—World Areas, Country, Schedule B Commodity Groupings and Method of Transportation**, Washington, D.C., 1973. Insurance rate is nominal. Charges are assumed to be constant.

[3] Estimated.

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Table B-7

China: Imports of Machinery and Transportation Equipment from Non-Communist Countries in Current and Constant US Dollars [1]

Year	(1) Imports, f.o.b. (Thousand current US $)	(2) Price Index I (1957 100)	(3) Price Index II (1957 100)	(4) Deflating Index (1957 100)	(5) Imports, f.o.b. (Thousand 1957 US $)
1952	11,965	81.9	84.8	82.9	14,433
1953	20,893	83.1	87.4	84.5	24,725
1954	13,309	84.8	90.0	86.5	15,386
1955	15,035	87.7	92.7	89.4	16,818
1956	41,555	94.5	96.0	95.0	43,742
1957	65,757	100.0	100.0	100.0	65,757
1958	69,698	102.6	103.2	102.8	67,800
1959	60,500	105.4	102.9	104.6	57,839
1960	49,600	105.8	108.7	106.8	46,442
1961	25,577	105.5	112.9	108.0	23,682
1962	15,588	105.2	110.0	106.8	14,596
1963	23,747	104.4	108.4	105.7	22,466
1964	61,359	107.1	101.2	105.1	58,382
1965	155,047	109.8	98.7	106.1	146,133
1966	237,635	111.9	115.0	112.9	210,483
1967	201,887	115.6	119.1	116.8	172,848
1968	105,951	119.4	113.0	117.3	90,325
1969	98,642	123.3	106.6	117.7	83,808
1970	248,972	125.7	109.7	120.4	206,787
1971	259,247	132.7	131.3	132.2	196,102
1972	245,769	136.3	143.5	138.7	177,195
1973	501,192	143.1	154.8	147.0	340,947

[1] Data for each column are derived as follows:

(1) Current value data are from Table B-1.

(2) Price Index I is from Table B-4. Index number for 1973 is estimated.

(3) Price Index II is from Table B-5. Index numbers for 1952 to 1954 are estimated.

(4) The actual Paasche price index used to deflate China's imports of machinery is a weighted average of Indexes I and II, giving twice the weight to Index I (see preface to Appendix B).

(5) Import values in constant 1957 dollars are equal to column (1) divided by column (4) times 100.

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